

Windows 2003

HP StorageWorks Hardware Providers installation guide

XP48
XP128
XP512
XP1024
VA
EVA
MSA

product version: 2.00.01

fifth edition (November 2004)

part number: T1634-96005

This guide describes how to install the HWP solution with HP disk arrays.



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HP StorageWorks Hardware Providers: Installation Guide
product version: 2.00.01
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About this guide

This guide provides information about installing the HP StorageWorks Hardware Providers (HWP) product on the HP StorageWorks families of disk arrays.

Intended audience

This guide describes and provides instructions for setting up the environment and installing the HP XP VDS/VSS Hardware Provider.

XP arrays

The instructions in this guide are intended for system administrators who already have the following skills and knowledge:

- a background with the XP family arrays and LUN configuration, security, and related products
- familiarity with array software, such as CommandView XP
- expertise with the Windows 2003 operating system and its file system

This document does not describe detailed information about using CommandView XP. Please refer to the CommandView XP documentation if you need more detailed information.

This guide applies to the HP StorageWorks XP microcode versions 01-24-xx or later.

For information about the disk arrays, please refer to the owner's manuals.

For more information about HP StorageWorks XP products, please contact your HP account representative, or visit HP online at

<http://www.hp.com>.

VA arrays

The instructions in this guide are intended for system administrators who have the following skills and knowledge:

- a background with the VA family of disk arrays, LUN configuration, security, and creating business copies
- familiarity with VA array software, such as CommandView SDM
- expertise with the Windows 2003 operating system and its file system

This document does not contain detailed information about using CommandView SDM. Please refer to the CommandView SDM documentation if you need more detailed information.

For more information about HP StorageWorks VA products, please contact your HP account representative, or visit HP online at

<http://www.hp.com>.

EVA arrays

The instructions in this guide are intended for system administrators who have the following skills and knowledge:

- a background with the EVA family of disk arrays and using CommandView EVA for LUN configuration, security, and creating business copies
- familiarity with EVA array software, such as Secure Path
- expertise with the Windows 2003 operating system and its file system

This document does not contain detailed information about using CommandView EVA for configuring LUNs. Please refer to the CommandView EVA documentation if you need more detailed information.

For more information about HP StorageWorks EVA products, please contact your HP account representative, or visit HP online at

<http://www.hp.com>.

MSA arrays

The instructions in this guide are intended for system administrators who have the following skills and knowledge:

- a background with the MSA family of disk arrays, LUN configuration, security, and creating business copies
- familiarity with MSA array software
- expertise with the Windows 2003 operating system and its file system

For more information about HP StorageWorks MSA products, please contact your HP account representative, or visit HP online at

<http://www.hp.com>.

Disk arrays

Unless otherwise noted, the term *disk array* refers to any of these disk arrays:

EVA family:

HP StorageWorks Enterprise Virtual Array 5000

VA family:

HP StorageWorks Virtual Array 7100

HP StorageWorks Virtual Array 7110

HP StorageWorks Virtual Array 7400

HP StorageWorks Virtual Array 7410

MSA family:

HP StorageWorks Modular Smart Array (MSA) 500

HP StorageWorks Modular Smart Array (MSA) 1000

HP StorageWorks Modular Smart Array (MSA) 1500

XP family:

HP Surestore E Disk Array XP48

HP Surestore E Disk Array XP512

HP StorageWorks Disk Array XP128

HP StorageWorks Disk Array XP1024

Related documentation

HP provides the following related documentation:

- *HP StorageWorks RAID Manager XP: User's Guide*
- *HP Surestore E Disk Array XP512/XP48: Owner's Guide*
- *HP StorageWorks Disk Array XP128: Owner's Guide*
- *HP StorageWorks Disk Array XP1024: Owner's Guide*

For information about Windows software, operating system commands, and third-party products, refer to the manufacturer's documentation.

Conventions

This guide uses the following text conventions.

page 1	Blue text represents a cross-reference. For the online version of this guide, the reference is linked to the target.
www.hp.com	Underlined, blue text represents a website on the Internet. For the online version of this guide, the reference is linked to the target.
literal	Bold text represents literal values that you type exactly as shown, as well as key and field names, menu items, buttons, file names, application names, and dialog box titles.
<i>variable</i>	Italics indicates that you must supply a value. Italics is also used for manual titles.
<code>input/output</code>	Monospace font denotes user input and system responses, such as output and messages.
<i>Example</i>	Denotes an example of input or output. The display shown in this guide may not match your configuration exactly.

[]	Indicates an optional parameter.
{ }	Indicates that you must specify at least one of the listed options.
	Separates alternatives in a list of options.

Getting help

If you still have questions after reading this guide, contact an HP authorized service provider or access our website:

www.hp.com

HP technical support

Telephone numbers for worldwide technical support are listed on the HP website:

thenew.hp.com/country/us/eng/support.html

From this website, select the country of origin.

Be sure to have the following information available before calling:

- technical support registration number (if applicable)
- product serial numbers
- product model names and numbers
- applicable error messages
- operating system type and revision level
- detailed, specific questions

For continuous quality improvement, calls may be recorded or monitored.

HP storage website

The HP storage website has the latest information about this product, as well as the latest drivers. Select the appropriate product or solution from this website:

thenew.hp.com/country/us/eng/prodserv/storage.html

HP authorized reseller

You can obtain the name of your nearest HP authorized reseller by telephone:

United States 1-800-345-1518

Canada 1-800-263-5868

elsewhere See the HP website for locations and telephone numbers:

www.hp.com

Revision history

May 2003	First edition.
December 2003	Changes affect installation for EVA family of arrays. General update.
August 2004	Added materials for chapter 5, “Installing Hardware Providers for MSA disk arrays.”
October 2004	Corrected password on page 29.
November 2004	Changed S-VOL to SVOL on page 23.

Warranty statement

HP warrants that for a period of ninety calendar days from the date of purchase, as evidenced by a copy of the invoice, the media on which the Software is furnished (if any) will be free of defects in materials and workmanship under normal use.

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Hardware Providers description

HP StorageWorks Hardware Providers (HWP) for Windows 2003 are API interfaces between the Windows 2003 operating system and the HP disk arrays. The interfaces are specific to each disk array.

HP StorageWorks HWP supports two Microsoft storage services:

- VDS
- VSS

Virtual Disk Service (VDS)

HP StorageWorks VDS HWP provides a single interface for managing volumes (software) and logical units (hardware). Administrators can identify supported HP storage devices, configure them, and monitor them from a central Windows 2003 Microsoft Management Console.

Management operations include:

- Binding.
- Topology discovery and tracking.
- Volume status.
- Fault tracking.
- Performance tracking.

Microsoft Management Console (MMC) Snap-in, Disk Manager and Diskpart command line interface use the service.

Volume Shadow Copy Service (VSS)

HP StorageWorks VSS HWP runs on the Windows 2003 server platform and is typically used by a requestor application, such as backup and recovery.

VSS backs up and restores data without any impact on the applications that are being executed at that particular instant. It quiesces a business application and interfaces with the HP disk array to create a point-in-time copy of a single volume or multiple volumes.

Installing Hardware Providers for XP disk arrays

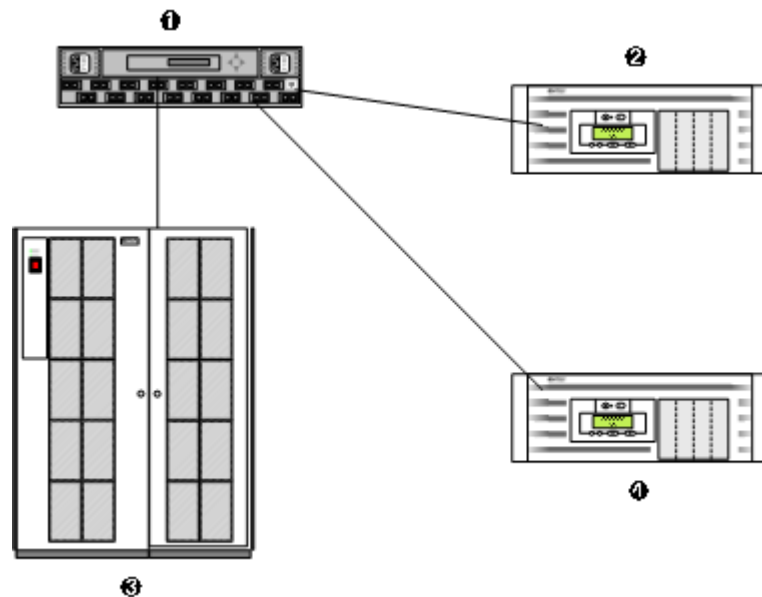
This chapter provides preconfiguration requirements and explains how to install Hardware Providers (HWP) on an XP disk array. When you install HWP, all the features of VDS and VSS are enabled, including point-in-time copies of LUNs and storage virtualization management.

Required XP components

The following components must be in place before installing HWP:

Hardware components

- HP StorageWorks XP disk array.
- Two host servers.
- Two HBAs.
- Fiber cables to connect the hosts to the disk array via direct connect or a switched environment.



- ❶ Switch.
- ❷ Windows Server 2003 where HWP is installed. RAID Manager Library is required.
- ❸ XP disk array.
- ❹ Windows 2000 server. Serves as the CommandView XP management station.

For HWP to function optimally, there must be a clear, unimpeded Ethernet connection between the XP and the CommandView XP workstation.

Issues that may interfere with HWP functions:

- Excessive traffic on the Ethernet.
- Viruses that slow down network movement.
- A firewall that excessively slows traffic from the CommandView station to the servers which host VSS/VDS.

Software components

- CommandView XP version 1.7A.
- RAID Manager Library 1.07.02.
- HP StorageWorks Business Copy XP.
- Windows 2000 Advanced Server.
- Windows 2000 Service Pack 2.
- Windows 2003.

HP StorageWorks XP disk array configuration

Configuration of the XP disk array requires access to the SVP by an HP service representative.

Prerequisites

- The host be connected to the array. Either direct-connect or SAN topology is supported.

- The host must have the required licenses:

Business Copy

LUN Configuration Manager

Secure Manager

SNMP agent

- The Windows Server 2003 host must have LAN connectivity to the CommandView XP management station.
- The Command Device LUN must be visible to the host. The command device interprets the management of commands and is not used for data storage. Therefore it can be as small as 36 MB. A VSC volume can be used as the command device. Do not use a LUSE volume.
- The IP address of the host must be entered in the **access.txt** file of CommandView XP.

VSS-specific settings

- The primary LUN to be managed by HWP services must be visible to the Windows 2003 system where the providers are installed.
- The VSS user account must have administrator privileges. (VSS hardware provider is a COM+ service that requires administrator privileges to retrieve system level information, such as SCSI details.)

LUN Security settings

LUN Security settings are configured differently for different types of disk arrays.

XP48

XP512

- In the LUN Security dialog box, ensure that **Security** is checked. Add the port worldwide name of the host to which the LUN is to be made visible to the list of worldwide names for the port.
- Select the LUN to which LUN Security is to be enabled. Select the port worldwide name of the host to which the selected LUN is to be unmasked. Click **Set**.
- The Business Copy XP LUNs must not have any port worldwide names associated with them.

XP128

XP1024

- **Security Switch** must be turned **ON** for the selected port.
- Create a host group secondary volume (SVOL). Add the LUNs that are to be used as secondary LUNs to this group. Do not associate any port worldwide names with this host group.
- Select the host group containing the LUNs that are to be made visible to the hosts. Add the worldwide name of the host that requires access to the LUNs.

SVP configuration

SVP configuration must be performed by the HP service representative.

1. *(HP representative only)* Configure the SNMP agent to enable control of the disk array by the CommandView XP host.
2. *(HP representative only)* On the SVP, open a command window.
3. *(HP representative only)* At the command prompt, type **snmpagt.exe** to display a dialog window with a property sheet.
4. *(HP representative only)* From the **manager** page, enter the IP address of the host system that runs CommandView XP.
5. This gives command control of XP management and configuration to the CommandView XP server.
6. *(HP representative only)* Reboot the SVP.

CommandView XP station configuration

CommandView XP is supported only on Windows 2000 platforms.

1. Install the CommandView XP software on the Windows 2000 host.
2. Ensure that the SVP on the disk array can be accessed from the host.
3. Start the CommandView GUI from a browser by typing the IP address of the host where CommandView XP is installed.

The login dialog appears.

4. Enter the username and password.

username: **administrator**

password: **administrator**

5. From the **Device Administration** tab, enter the IP address of the disk array to be managed by CommandView XP.

The CommandView XP device administration screen populates the details of the array.

The IP address of the systems that will be the clients for the CommandView XP server is defined in the configuration file:

drive\HPSS\dm\tomcat\webapps\hpstmgmt\WEB-INF\cvapi\config

The configuration file is located on the drive where CommandView XP is installed.

6. Save the configuration.
7. Restart the CommandView XP services.

RAID Manager Library

The RAID Manager Library is required to perform Business Copy operations on the disk array. Install the RAID Manager Library version 1.07.02 on the Windows 2003 host where the hardware providers reside.

Identifying volume shadow copy LUNs

HWP requires preconfiguring some of the LUNs in the array. Business Copy XP LUNs managed by HWP must be designated during configuration. Business Copy XP uses these LUNs to make copies of the volumes. These LUNs are masked from all the hosts except the host that is importing the metadata file generated during snapshot creation.

The installation procedure, below, includes the configuration instructions.

Installing

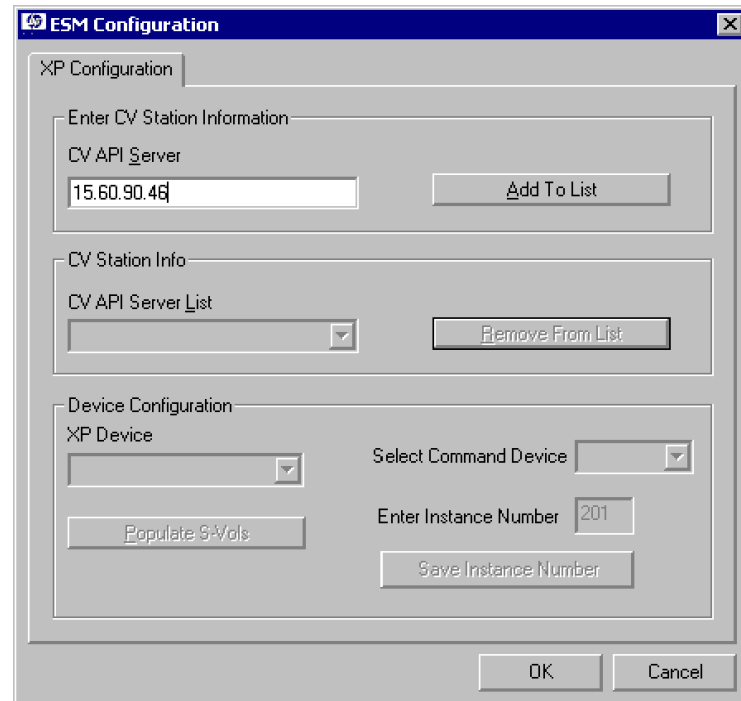
The installation utility performs the following functions:

- Retrieves the disk number of the LUN configured as the Command Device.
- Configures the LUNs to be used as Business Copy XP LUNs.
- Installs HWP (VSS and VDS).

1. Start the HWP executable file:

hp StorageWorks VSS/VDS hardware provider for XP.msi

Follow the on-screen instructions to install VSS in the default location.



2. Enter the IP address of the CommandView XP management station.
3. Click **Add To List**.

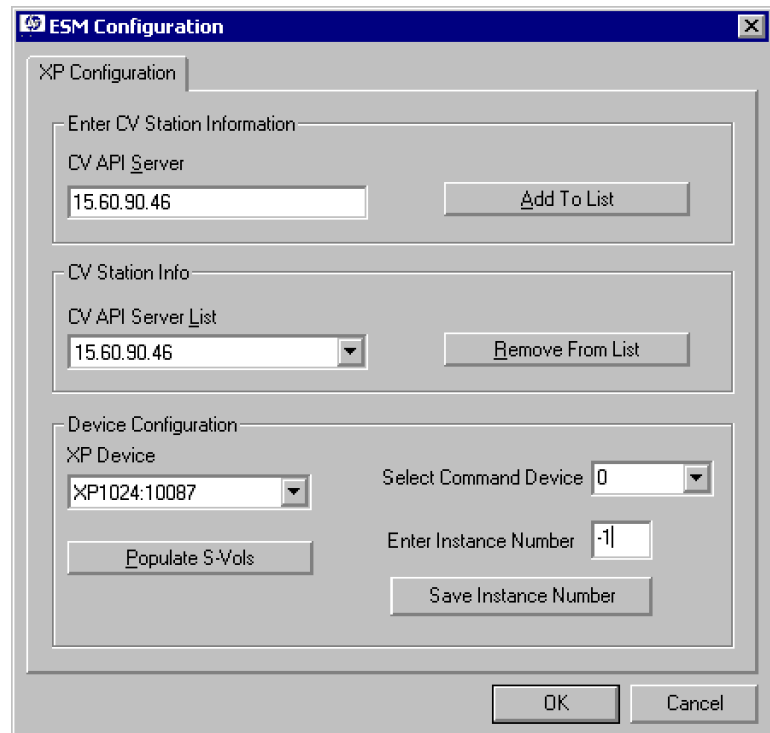


A dialog box titled "Enter UserName And Password" with a close button (X) in the top right corner. It contains two text input fields: "Enter CV Username" with the value "cvapiadmin" and "Enter CV Password" with a masked password represented by asterisks. At the bottom are "OK" and "Cancel" buttons.

4. Enter the username and password:

username: **cvapiadmin**

password: **nimdaipave**



A dialog box titled "ESM Configuration" with a close button (X) in the top right corner. It has a tabbed interface with the "XP Configuration" tab selected. The dialog is divided into three main sections:

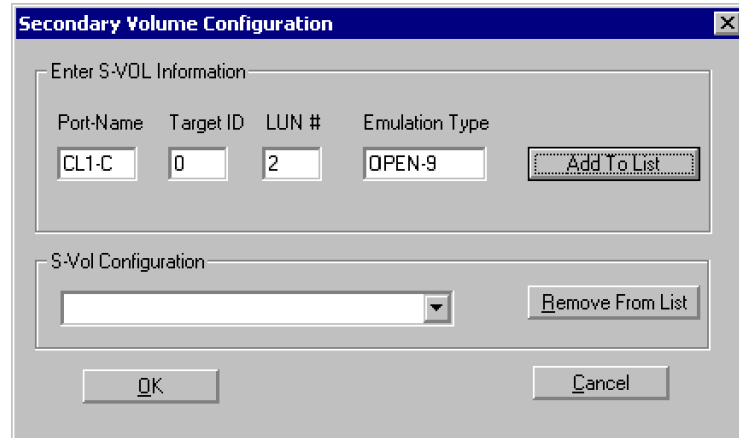
- Enter CV Station Information:** Contains a "CV API Server" text field with the value "15.60.90.46" and an "Add To List" button.
- CV Station Info:** Contains a "CV API Server List" dropdown menu with "15.60.90.46" selected and a "Remove From List" button.
- Device Configuration:** Contains an "XP Device" dropdown menu with "XP1024:10087" selected, a "Populate S-Vols" button, a "Select Command Device" dropdown menu with "0" selected, an "Enter Instance Number" text field with "-1", and a "Save Instance Number" button.

 At the bottom right are "OK" and "Cancel" buttons.

The window is automatically populated with the list of disk arrays managed by the CommandView XP server.

If the window is not populated, a communication problem has occurred at the CommandView XP server.

5. Select a number in the range 201 to 1000 and enter the number in the **Enter Instance Number** box.
6. Click **Save Instance Number**.
7. Click **Populate S-Vols** to display the **Secondary Volume Configuration** dialog box.



The image shows a dialog box titled "Secondary Volume Configuration". It has a blue title bar with a close button (X). The dialog is divided into two main sections. The top section is labeled "Enter S-VOL Information" and contains four input fields: "Port-Name" with the value "CL1-C", "Target ID" with the value "0", "LUN #" with the value "2", and "Emulation Type" with the value "OPEN-9". To the right of these fields is a button labeled "Add To List". The bottom section is labeled "S-Vol Configuration" and contains a list box that is currently empty. To the right of the list box is a button labeled "Remove From List". At the bottom of the dialog are two buttons: "OK" and "Cancel".

8. Enter the port name, LUN number, and emulation type of the LUN to be used for the volume shadow copy.

Keep the default **Target ID** value of **0**.

9. Click **Add To List**.

The S-VOL Configuration menu displays the list of LUNs that have been added for use as volume shadow copies.

10. Click **OK** to save the configuration.

Installation of the hardware providers is now complete.

To verify successful installation, choose **Start > Settings > Control Panel**. Double-click **Add/Remove Programs**. Verify that the VDS and VSS appear in the list of installed programs.

Uninstalling

To uninstall HWP:

1. Select **Start > Settings > Control Panel**.

Make these selections if the machine's Start menu properties are set to use the "Classic Start menu" option. If the properties are set to use the "Start menu" option, you will not see **Settings**. Instead:

Select **Start > Control Panel**.

2. Double-click **Add/Remove Programs**.
3. Select the program item.
4. Click **Change/Remove**.

Installing Hardware Providers for VA disk arrays

This chapter provides preconfiguration requirements and explains how to install Hardware Providers (HWP) on a VA disk array. When you install HWP, all the features of VDS and VSS are enabled, including point-in-time copies of LUNs and storage virtualization management.

Required VA components

The following components must be in place before installing HWP:

Hardware components

- HP StorageWorks VA disk array.
- Two host servers.
- One server runs Windows 2000 and functions as the CommandView SDM server. The second server runs Windows 2003 and functions as the provider server.
- Two HBAs.
- Fiber cable to connect the hosts to the disk array via direct connect or a switched environment

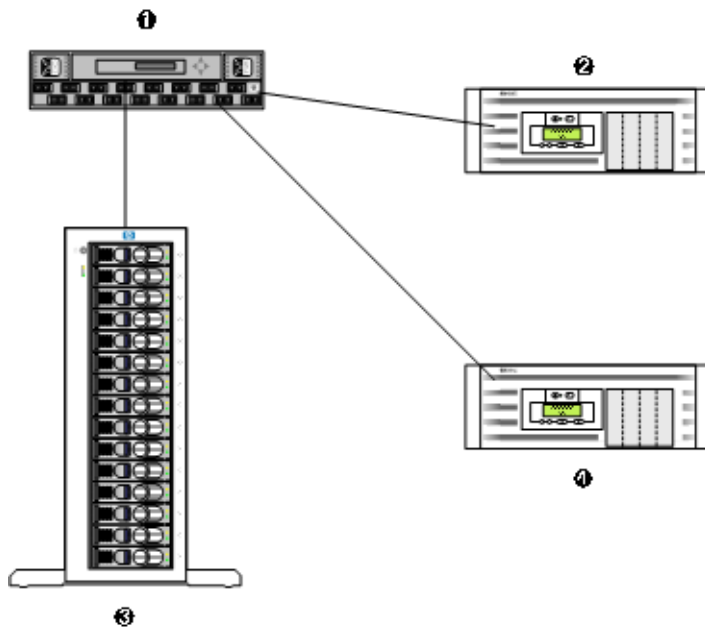
For HWP to function optimally, there must be a clear, unimpeded Ethernet connection between the VA and the CommandView SDM workstation.

Issues that may interfere with HWP functions:

- Excessive traffic on the Ethernet.
- Viruses that slow down network movement.
- A firewall that excessively slows traffic from the CommandView station to the servers which host HWP.

Software components

- Windows 2000 Advanced Server.
- Windows 2000 Service Pack 2.
- Windows 2003.
- HP StorageWorks Business Copy XP.
- HP StorageWorks Secure Manager XP.
- HP StorageWorks CommandView SDM version 1.6.



- ❶ Switch.
- ❷ Windows Server 2003 where HWP is installed.
- ❸ VA disk array.
- ❹ Windows 2000 server. Serves as the CommandView SDM management station.

HP StorageWorks VA disk array configuration

Prerequisites

- The host must have connectivity to the array through the SAN fabric.
An in-band Fibre Channel (FC) connection must exist from the host to the VA disk array either through direct attach or a SAN.

- The host must have the required licenses:

Business Copy
Secure Manager

- The Windows Server 2003 host must have LAN connectivity to the CommandView VA management station.
- The Command Device LUN must be visible to the hosts.

VSS-specific settings

- The VSS user account must have administrator privileges for CommandView VA. (VSS is a COM+ service that requires administrator privileges to retrieve system level information, such as SCSI details.)

CommandView SDM configuration

CommandView SDM is supported only on Windows 2000 platforms.

1. From a hyperterminal, ensure that a LUN 0 has been assigned to the disk array.
2. Install the CommandView SDM software on the Windows 2000 host system.
3. Open a command prompt on the CommandView SDM server.
4. Execute the **armdiscover** command to discover the disk array.
5. Start the CommandView GUI by double-clicking the CommandView SDM icon on the desktop.
6. Assign LUNs secured to the provider host.

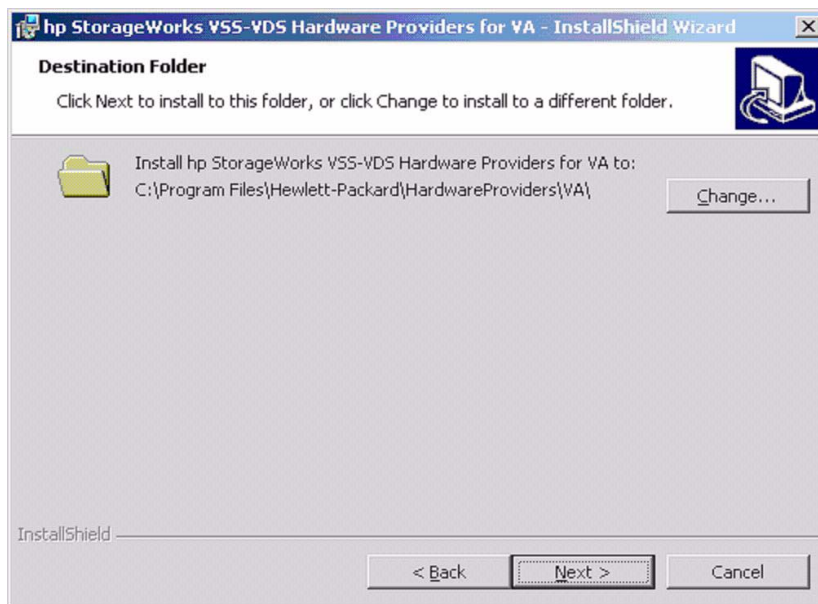
If you need further assistance with CommandView SDM configuration, consult the user documentation or contact your HP representative.

Installing

The installation utility installs HWP (VDS and VSS).

1. Start the HWP executable file:

hp StorageWorks VSS/VDS hardware provider for VA.msi



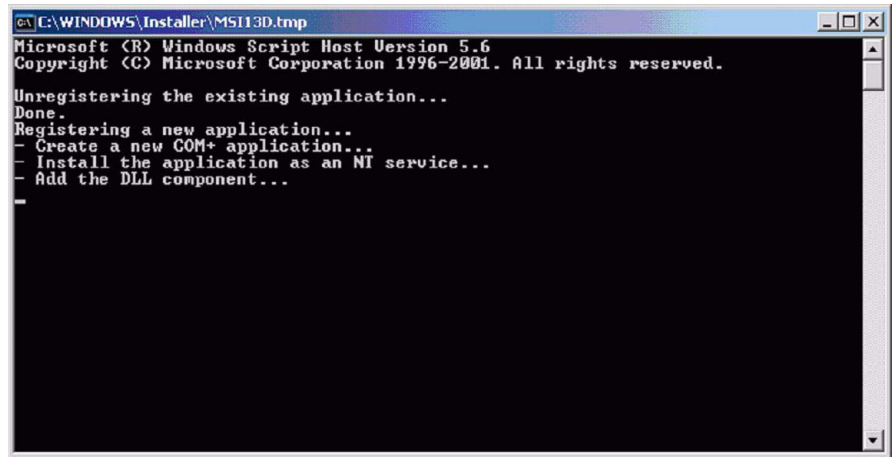
2. Follow the on-screen instructions to install HWP.

Recommendation

Install HWP in the default location.

During installation, the screen displays registration of new components.

Example

A screenshot of a Windows Script Host window titled "C:\WINDOWS\Installer\MSI13D.tmp". The window contains the following text:

```
Microsoft (R) Windows Script Host Version 5.6
Copyright (C) Microsoft Corporation 1996-2001. All rights reserved.

Unregistering the existing application...
Done.
Registering a new application...
- Create a new COM+ application...
- Install the application as an NT service...
- Add the DLL component...
-
```

After completion of the installation process, the ESM Configuration window is displayed.

3. Enter the IP address and click **Add to List**.

Example

The screenshot shows the 'ESM Configuration' window with the 'VA Configuration' tab selected. It contains two main sections: 'Enter CV Station Information' and 'CV Station Information'. The first section has a text box for 'CV Station Address' containing '15.75.206.14' and an 'Add To List' button. The second section has a 'CV Station Address List' dropdown menu showing '15.75.206.14' with a 'Remove From List' button, a 'CV Device Serial No' dropdown menu showing '00USP1001097', and a 'VA Array Password' text box with an 'Update Password' button. At the bottom are 'OK' and 'Cancel' buttons.

The CV Station Information section of the window is automatically populated.

If this section is not populated, a communication problem has occurred between the CommandView SDM management station and the server that is running the hardware providers.

4. Click **OK**.

Installation of the hardware provider is now complete.

To verify successful installation, choose **Start > Settings > Control Panel**. Double-click **Add/Remove Programs**. Verify that VDS and VSS appear in the list of installed programs.

Uninstalling

To uninstall HWP:

1. Select **Start > Settings > Control Panel**.

Make these selections if the machine's Start menu properties are set to use the "Classic Start menu" option. If the properties are set to use the "Start menu" option, you will not see **Settings**. Instead:

Select **Start > Control Panel**.

2. Double-click **Add/Remove Programs**.
3. Select the program item.
4. Click **Change/Remove**.

Installing Hardware Providers for EVA disk arrays

This chapter provides preconfiguration requirements and explains how to install Hardware Provider (HWP) on an EVA disk array. When you install HWP, all the features of VDS and VSS are enabled, including point-in-time copies of LUNs and storage virtualization management.

Required EVA components

The following components must be in place before installing HWP.

With HWP you can use Snapclones or Snapshots to create LUN copies. Your HP account representative can assist you in determining the supported configurations for your system.

Hardware components

- HP StorageWorks EVA 5000 disk array with HP StorageWorks Secure Path and Business Copy XP software installed.
- CommandView EVA workstation.

There must be a functioning CommandView EVA workstation. If you need help with configuring the CommandView EVA workstation, refer to that product's user documentation.

- SAN fabric.

The SAN fabric should be in place.

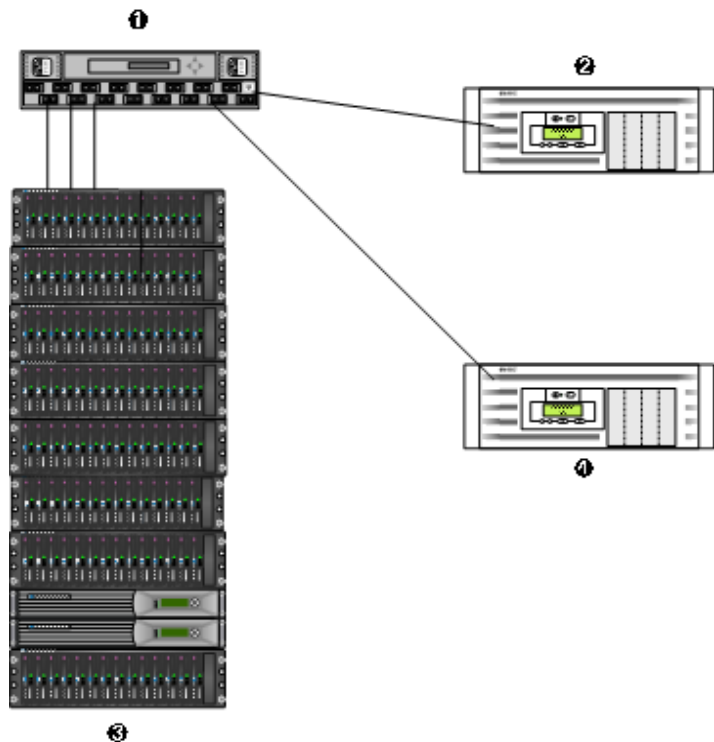
- Ethernet connection.

For HWP to function optimally, there must be a clear, unimpeded Ethernet connection between the EVA 5000 and the CommandView EVA workstation. The Hardware Providers use ports 12301 and 2301, and these ports must be free and available in order for HWP to function.

Possible issues which will interfere with the functioning of the Hardware Providers:

- Excessive traffic on the Ethernet.
- Viruses that slow down network movement.
- Ports 12301 or 2301 unavailable.
- A firewall that excessively slows traffic between the EVA 5000 and the CommandView EVA workstation.
- The HP Open View Storage Management Appliance with VCS 3.0 and CommandView EVA version 3.0a.

- HWP production server running Windows 2003. The production server requires:
 - An Ethernet connection to the EVA 5000/CommandView EVA workstation network.
 - A fiber connection to the SAN.
 - HP StorageWorks Secure Path
- Two HBAs.
- Direct or fabric fiber connection from the host servers to the disk array.



- ① Switch
- ② Windows Server 2003 where the VDS/VSS hardware providers are installed.
- ③ EVA disk array
- ④ CommandView EVA management workstation

Software components

- Windows Server 2003
- HP StorageWorks Secure Path
- HP StorageWorks Business Copy

HP StorageWorks EVA disk array configuration

Prerequisites

- The host must have the required license:
Business Copy for #TB for VCS 2.0 and 3.0 capacity license

VSS-specific settings

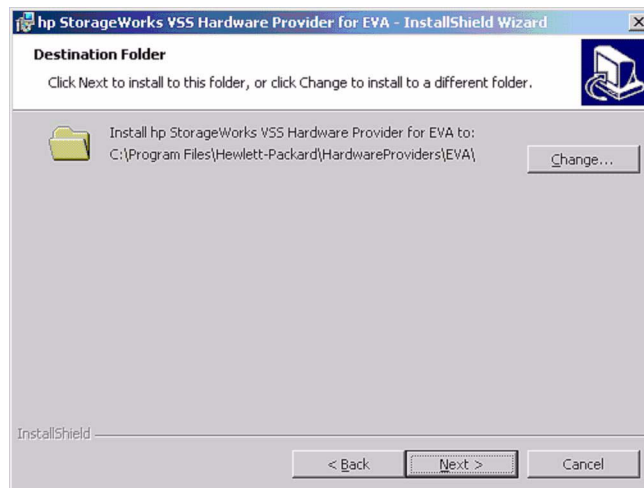
- The primary LUN to be managed by HWP services must be visible to the Windows 2003 system where the services are installed.
- The VSS user account must have administrator privileges for CommandView EVA. (The VSS hardware provider is a COM+ service that requires administrator privileges to retrieve system level information, such as SCSI details.)

Installing

This procedure installs VSS followed by VDS. Both components are required.

1. Start the VSS executable file:

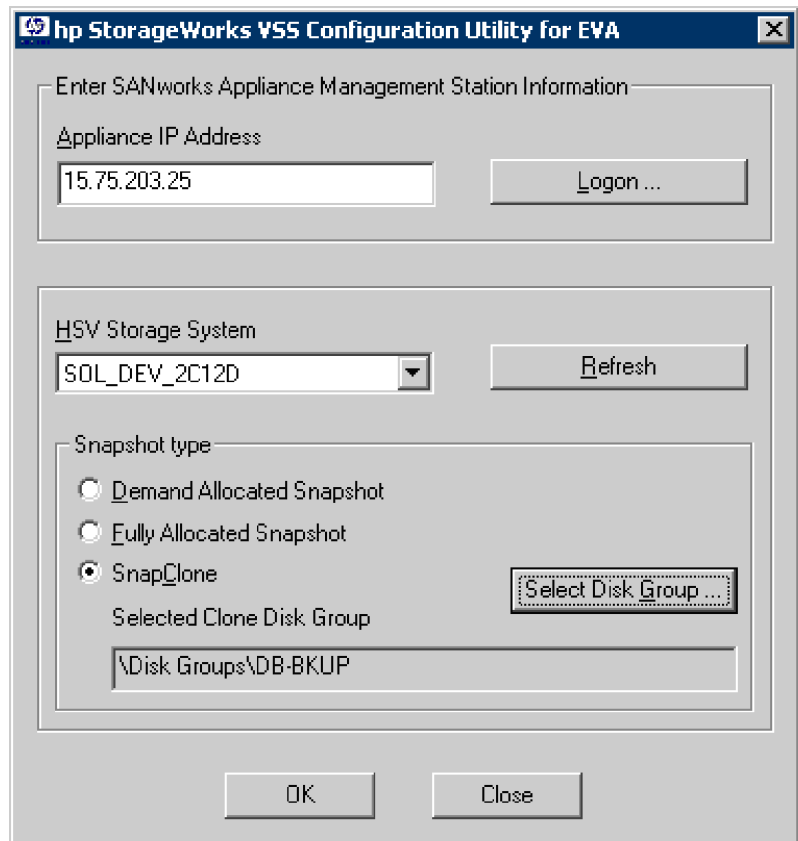
Hp StorageWorks VSS hardware provider for EVA.msi



2. Follow the on-screen instructions to install VSS.

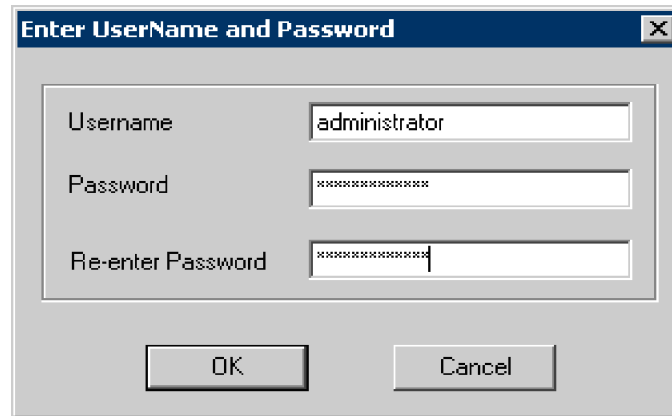
Recommendation

Install VSS in the default location.



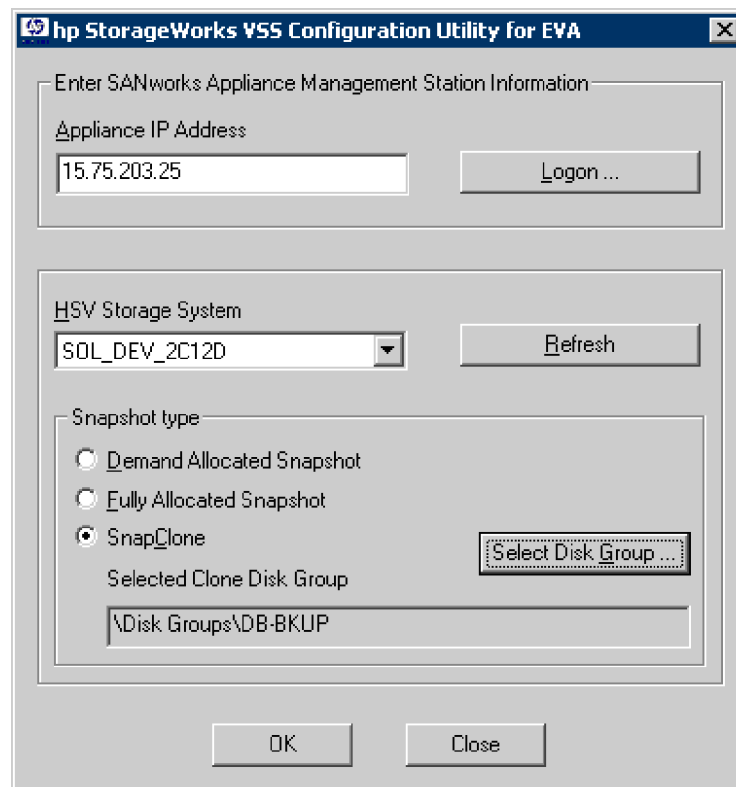
The image shows a Windows-style dialog box titled "hp StorageWorks VSS Configuration Utility for EVA". It contains two main sections. The top section, titled "Enter SANworks Appliance Management Station Information", has a text field for "Appliance IP Address" containing "15.75.203.25" and a "Logon ..." button. The bottom section, titled "HSV Storage System", has a dropdown menu showing "SOL_DEV_2C12D" and a "Refresh" button. Below this is a "Snapshot type" section with three radio buttons: "Demand Allocated Snapshot", "Fully Allocated Snapshot", and "SnapClone" (which is selected). To the right of the "SnapClone" option is a "Select Disk Group ..." button. Below the radio buttons is a text field for "Selected Clone Disk Group" containing the path "\Disk Groups\DB-BKUP". At the bottom of the dialog are "OK" and "Close" buttons.

3. Enter the CommandView EVA name or IP address.
4. Click **Logon**.



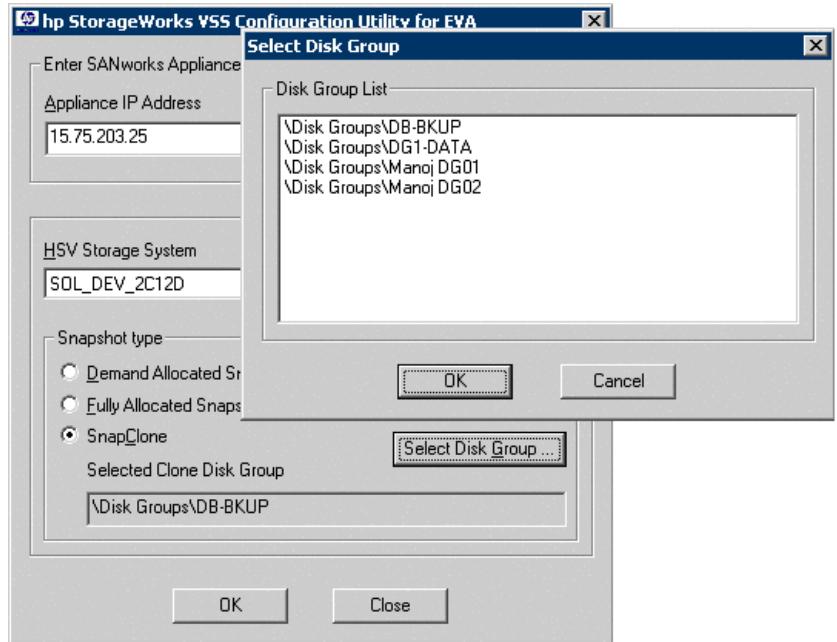
A dialog box titled "Enter Username and Password" with a close button (X) in the top right corner. It contains three text input fields: "Username" with the text "administrator", "Password" with masked characters "xxxxxxxxxx", and "Re-enter Password" with masked characters "xxxxxxxxxx" and a cursor at the end. At the bottom are "OK" and "Cancel" buttons.

5. Enter the username and password. Re-enter the password. Click **OK**.



A dialog box titled "hp StorageWorks VSS Configuration Utility for EVA" with a close button (X) in the top right corner. It is divided into two main sections. The top section, titled "Enter SANworks Appliance Management Station Information", contains an "Appliance IP Address" field with the text "15.75.203.25" and a "Logon ..." button. The bottom section, titled "HSV Storage System", contains a dropdown menu showing "SOL_DEV_2C12D" and a "Refresh" button. Below this is a "Snapshot type" section with three radio buttons: "Demand Allocated Snapshot", "Fully Allocated Snapshot", and "SnapClone" (which is selected). To the right of the "SnapClone" option is a "Select Disk Group ..." button. Below the radio buttons is a "Selected Clone Disk Group" field with the text "\Disk Groups\DB-BKUP". At the bottom are "OK" and "Close" buttons.

6. Select the type of snapshot to be used: If you are using Snapclones, you need to choose the disk group that will be used to create the Snapclone.
7. After selecting the Snapclone radio button, click **Select Disk Group**. This will display a window with a list of available disk groups to choose from.

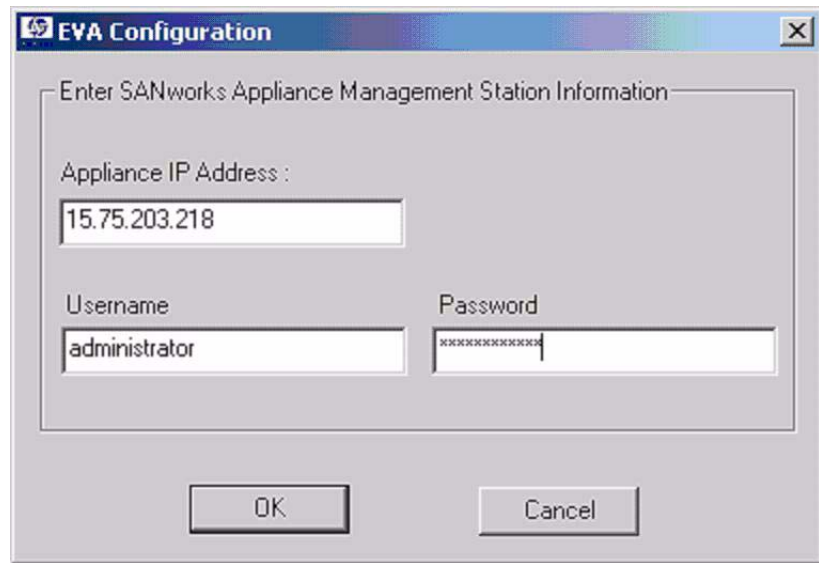


8. Select a disk group. Click **OK**.
9. Click **OK**.

The installation of the VSS portion of HWP for EVA is complete.

10. Start the VDS executable file:

Hp StorageWorks VDS hardware provider for EVA.msi



11. In the EVA Configuration dialog, enter the CommandView EVA IP address, username, and password.

If you have changed the password for CommandView EVA or the EVA hardware providers, you must reboot Windows Server 2003.

12. Click **OK**.

The installation of the VDS portion of HWP for EVA is complete.

To verify successful installation, choose **Start > Settings > Control Panel**. Double-click **Add/Remove Programs**. Verify that VDS and VSS appear in the list of installed programs.

Changing authentication for the SMA

If you need to change the authentication information for SMA after installation, open the **EMSConfig.EVA** file from the directory where the VDS and VSS are installed. Use the EVA Configuration dialog to change the authentication information.

Uninstalling

To uninstall HWP:

1. Select **Start > Settings > Control Panel**.

Make these selections if the machine's Start menu properties are set to use the "Classic Start menu" option. If the properties are set to use the "Start menu" option, you will not see **Settings**. Instead:

Select **Start > Control Panel**.

2. Double-click **Add/Remove Programs**.
3. Select the program item.
4. Click **Change/Remove**.

Installing Hardware Providers for MSA disk arrays

This chapter explains how to install the VDS Hardware Provider for the MSA disk array. When you install the VDS provider, all supported features are enabled.

Required MSA components

Your HP account representative can help you plan your HWP configuration.

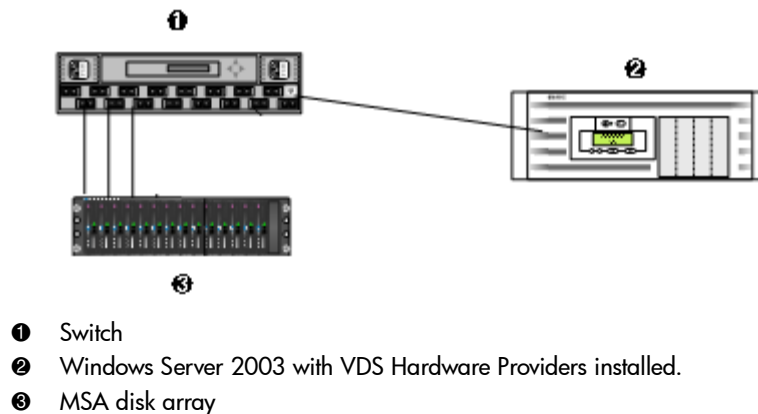
The following components must be in place before installing HWP:

Hardware components

- HP StorageWorks MSA disk array with an Ethernet connection
- Windows 2003 production server with an Ethernet connection
- Two HBAs
- Direct or fabric fiber connection from the host servers to the disk array

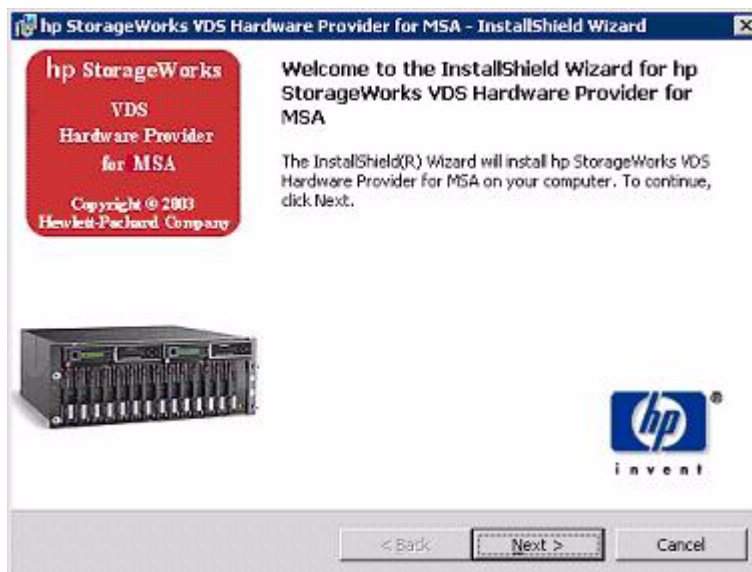
Software components

- Windows Server 2003
- HP StorageWorks Secure Path

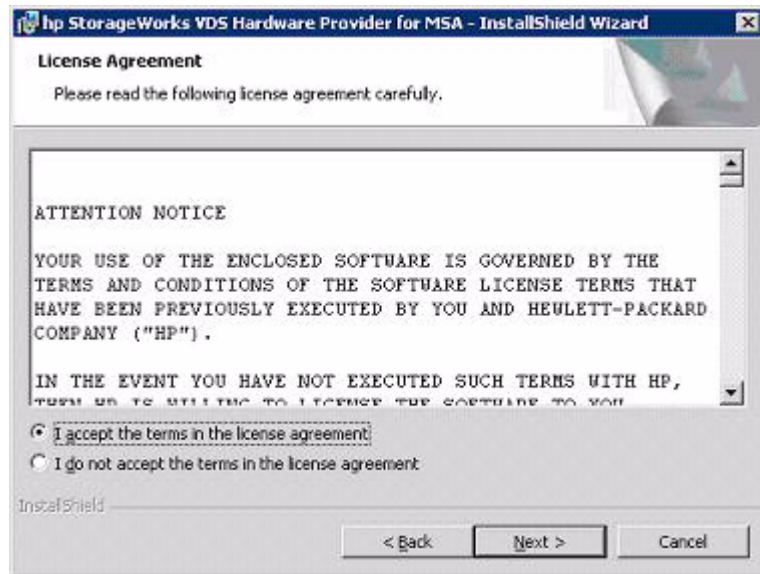


Installing

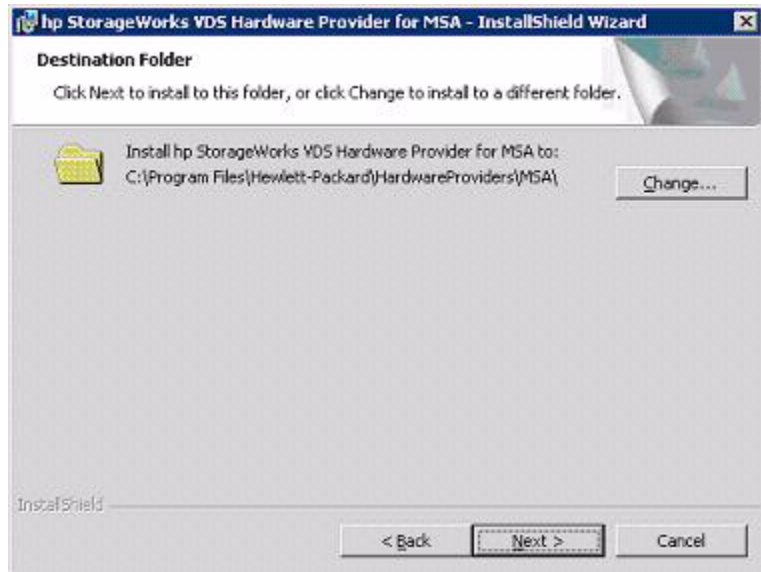
1. Insert the HWP installation CD. The installation wizard launches automatically, and the following window appears.



2. Click **Next**.

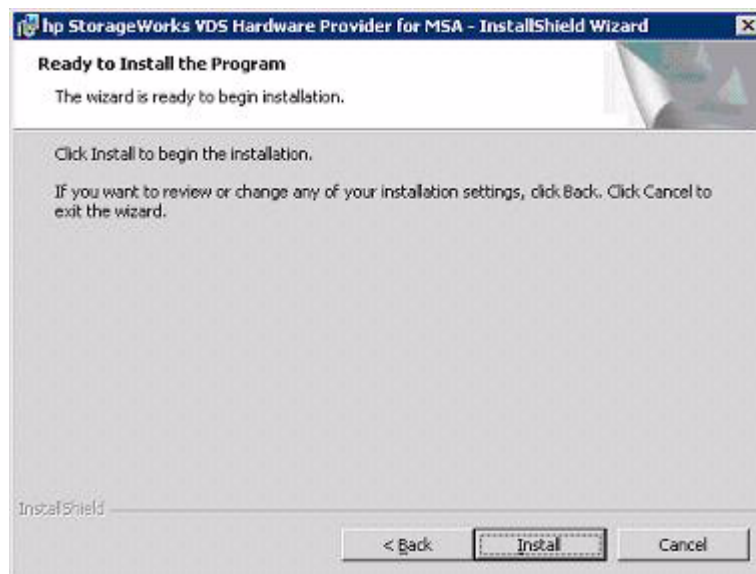


3. Review the license agreement, and click the “I accept...” radio button.
4. Click **Next**.

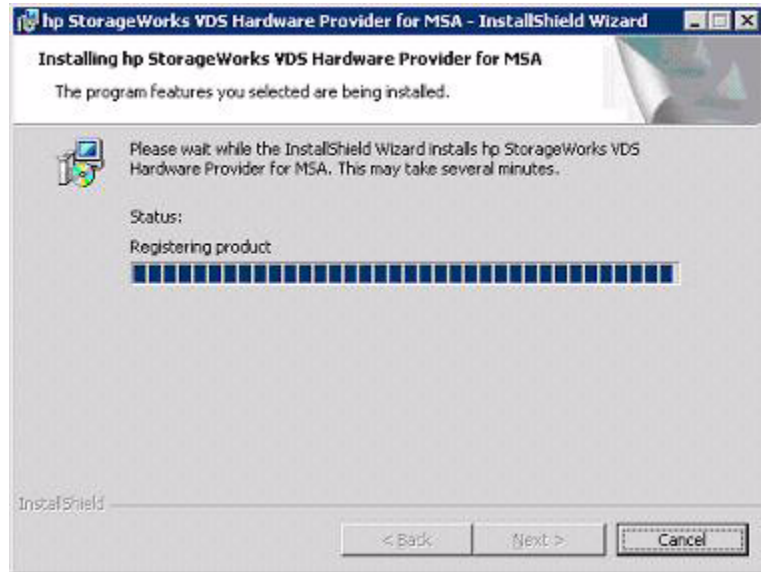


5. Click **Next** to accept the default destination folder.

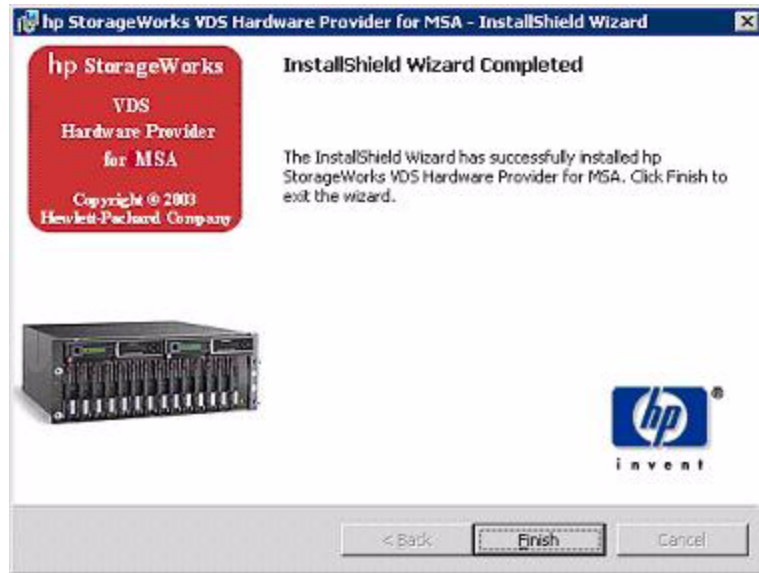
Click **Change** if you want to create your own destination folder. Browse to an existing folder or create a new a folder, and then click **Next**.



6. Click **Install**.



7. The wizard displays an installation status window. If you need to cancel the installation, click **Cancel**.



8. When the installation is complete, click **Finish** to exit the wizard.
9. To verify successful installation, choose **Start > Control Panel**. Double-click **Add/Remove Programs**. Verify that “VDS Hardware Provider for MSA” appears in the list of installed programs.

Uninstalling

To uninstall HWP:

1. Select **Start > Settings > Control Panel**.

Make these selections if the machine's Start menu properties are set to use the "Classic Start menu" option. If the properties are set to use the "Start menu" option, you will not see **Settings**. Instead:

Select **Start > Control Panel**.

2. Double-click **Add/Remove Programs**.
3. Select the program item.
4. Click **Change/Remove**.

Glossary

This glossary defines acronyms and terms used in this guide or related to this product and is not a comprehensive glossary of computer terms.

API	Application Programming Interface.
CV	HP StorageWorks CommandView.
disk array	Supported disk arrays for Hardware Providers include: the XP series, VA series, EVA series, and MSA series.
FC	Fibre Channel.
GUI	Graphical User Interface.
HBA	Host bus adapter.
HWP	Hardware Providers. A collection of software that executes on the host, a bus adapter, and/or external storage subsystem that works together to surface and manage RAID LUNs. Providers for most external storage subsystems have only user-mode host-based software components.
LAN	Local Area Network
LUN	Logical Unit Number. A physically addressable storage unit as surfaced by a hardware RAID subsystem.
P-VOL	Primary volume
RAID	Redundant array of independent disks.

S-VOL	Secondary volume.
HBA	Host bus adapter.
SAN fabric	The hardware that connects workstations and servers to storage devices in a Storage Area Network is referred to as a “fabric.” A switch, known as a Fibre Channel fabric switch is central to the concept. The SAN fabric enables any-server-to-any-storage device connectivity through the switch.
SNMP	Simple Network Management Protocol.
shadow copy	Shadow copy (or volume shadow copy) technology provides an instant copy of an original volume. The original volume continues to change as the process continues, but the shadow copy of the volume remains constant.
subsystem	The physical instantiation of a hardware provider. Includes one or more controllers and one or more drives. If the subsystem is external to the computer, one or more paths connect the subsystem to the computer.
SVP	Service processor. A laptop PC built into the disk array. The SVP provides a direct interface into the disk array, and is used by the HP service representative only.
volume	Generic term for a number of disk extents bound into a virtually contiguous range of logical blocks. Volume can also be software shorthand for a mapped volume (NT drive letter or mount point).
VDS	Microsoft Virtual Disk Service.
volume shadow copy	See “shadow copy.”
VSC	Volume Size Configuration.
VSS	Microsoft Volume Shadow Copy Service.

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